

## REMARKS

These remarks are filed in response to an office action mailed on May 2, 2006. Claims 1-18 are pending and claims 7-18 are withdrawn.

The specification is amended pursuant to 37 C.F.R. § 1.125 by submission of a substitute specification. A marked-up version of the specification with markings to show all the changes relative to the immediate prior version; and a clean version of the substitute specification are being submitted. Specifically, the changes detailed below have been implemented by means of the substitute specification. Above the title on the first page of the specification, the terms “Electronic Version” and “Stylesheet Version v1.1.1” have been deleted. The title has been amended to remove the introductory term “Description” and to reduce the size of the remainder of the title to be in conformity with the remainder of the specification. On the page on which the claims begin, the size of the heading “Claims” has been reduced to be in conformity with the remainder of the specification. On the page containing the Abstract, the title of the application has been deleted and the size of the heading “Abstract” has been reduced to be in conformity with the remainder of the specification. Page numbers have also been inserted in the specification. The bracketed symbols, [c1], [c2], [c3], etc, that appeared in front of the claims in the application as filed were deleted in the February 15, 2006 response to the November 15, 2005 Office Action. Accordingly, these previously implemented changes are not shown in the currently submitted marked-up copy of the specification. The claims have, however, been included in the substitute specification so that the addition of the page numbers would correctly reflect the original number of pages. The claims presented in the substitute specification are otherwise as filed do not reflect the current status of the claims.

Claims 1-6 are rejected under 35 U.S.C. § 103(a) as being obvious in view of United States Patent No. 5,625,095 (Miura). Applicants respectfully traverse the rejection. Providing an estimate of the concentration of methyl iodide and acetaldehyde based on the density of the mixture is unsupported by *Miura*. In fact, *Miura* describes sophisticated measurement that provides the concentration of several components including impurities (see column 12, lines 20 to 44 and Table 1).

*Miura* does not disclose or suggest measuring the density of a mixture comprising methyl iodide and acetaldehyde. Nor does *Miura* disclose or suggest using density measurements of a mixture of methyl iodide and acetaldehyde to adjust the control parameters of a distillation or extraction system. *Miura* does not describe the control system for its process, nor does it provide any suggestion that the composition of streams from its distillation column or extractor is used to control the operation or feed conditions of its distillation column or extractor.

*Miura* asserts the need for less than 400 ppm acetaldehyde in its reactor and that the concentration is best maintained by removing acetaldehyde from the process streams circulated to the reactor by performing distillation or distillation followed by extraction. *Miura* discloses that acetaldehyde removal is achieved by distilling at a maximum temperature of 5°C or *higher*, reflux temperature of 25°C or *higher*, and pressure of 1 kg/cm<sup>2</sup> or *more*. *Miura* demonstrates the removal of acetaldehyde by such distillation by providing concentrations of various components before and after distillation (column 12, lines 20-44). *Miura* then discloses how a subsequent extraction of the distillate followed by a second distillation can further remove acetaldehyde from process streams that are recycled to the reactor (column 12, line 55 to column 13, line 34). *Miura* discloses concentrations of components before and after extraction. *Miura* discloses certain conditions that can be used for the extraction. As to the second distillation, *Miura* states that any pressure can be used, and that operating pressure is not essential. By these methods, *Miura* discloses that acetaldehyde in the reactor, as a result of circulated streams, can be kept below 400 ppm.

*Miura* basically discloses that if you subject certain process streams containing acetaldehyde to distillation and extraction, you can remove acetaldehyde. *Miura* provides analysis of streams before and after distillation and extraction merely to demonstrate that reduction of acetaldehyde can be achieved by following the methods of *Miura* can be achieved by following the methods of *Miura*. *Miura* provides specific concentration information for acetaldehyde and other minor impurities, likely obtained from gas chromatography or another precise chemical measurement tool.

Contrary to Examiner's argument, *Miura* does not disclose any control scheme for these distillation and extraction steps. *Miura* merely states that if you perform these steps within certain general guidelines you will reduce acetaldehyde that is recirculated to the reactor. *Miura* provides concentration measurements to merely demonstrate removal of acetaldehyde. *Miura* does not teach or suggest that based on these measurements the parameters of the distillation or extraction steps are changed. These concentrations are provided to demonstrate effectiveness of distillation and extraction, not to provide information on process control. Indeed, the precise controlled concentration measurements shown in *Miura* take a long period of time, which is not consistent with a process control system designed to provide ongoing control and feedback to a distillation and extraction system.

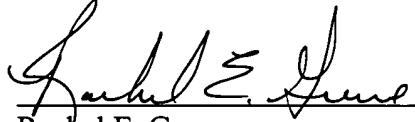
In contrast, Applicants describe and claim density measurement because although density measurement provides less precise information than that available by gas chromatography or other more precise chemical measurement tool, the quickly available component information is useful for almost instantaneously modifying process conditions. The advantages of Applicants' system include providing a quick, effective measurement mechanism and using the measured information to quickly provide feedback to the extractor and distillation column.

In conclusion, *Miura* does not teach, show, or suggest measuring the density of the overhead and adjusting at least one process variable associated with the distillation apparatus in response to the measured density or a relative concentration calculated therefrom as recited in claim 1. Also, *Miura* does not teach, show, or suggest measuring the density of at least one of the overhead, the extract and the raffinate, and adjusting at least one process variable associated with the distillation apparatus or the extraction step in response to said measured density or a relative concentration calculated therefrom as recited in claim 2 and claims 3-6 dependent thereon. Withdrawal of the rejection is respectfully requested.

**CONCLUSIONS**

As a result of the foregoing amendments and remarks, Applicants respectfully submit that this case is in condition for allowance.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "Rachel E. Greene", written over a horizontal line.

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